

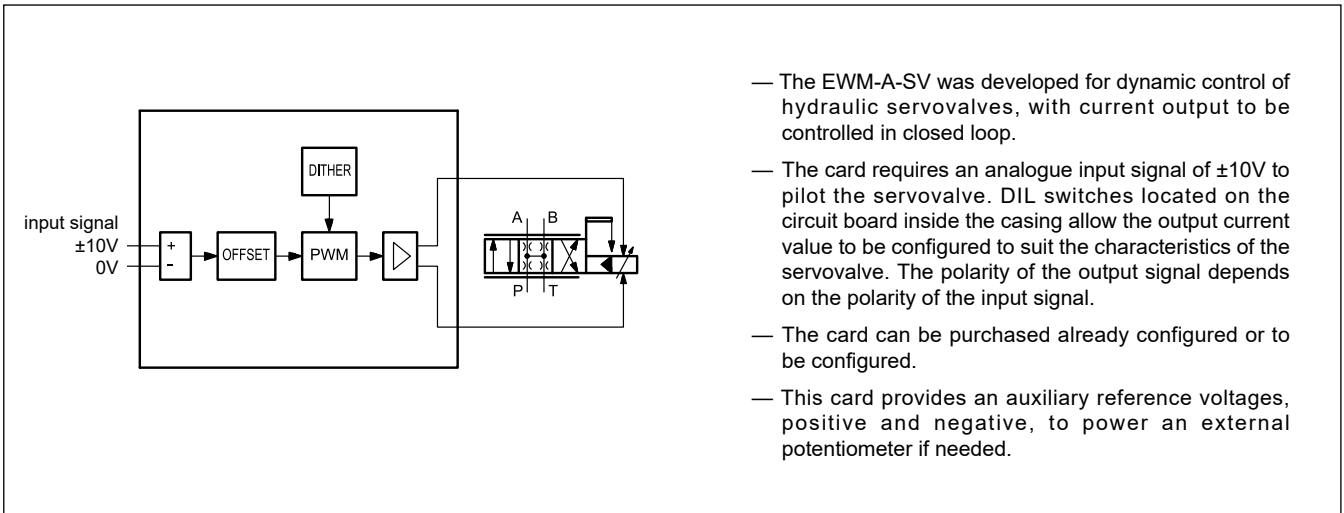


EWM-A-SV

ANALOGUE POWER AMPLIFIER FOR SERVOVALVE SERIES 11

**RAIL MOUNTING TYPE:
DIN EN 50022**

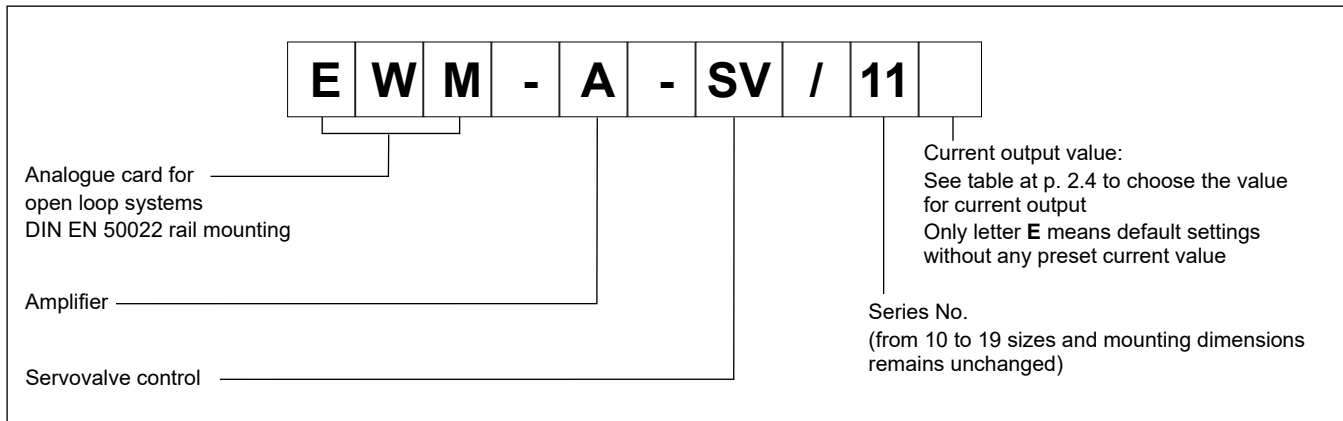
OPERATING PRINCIPLE



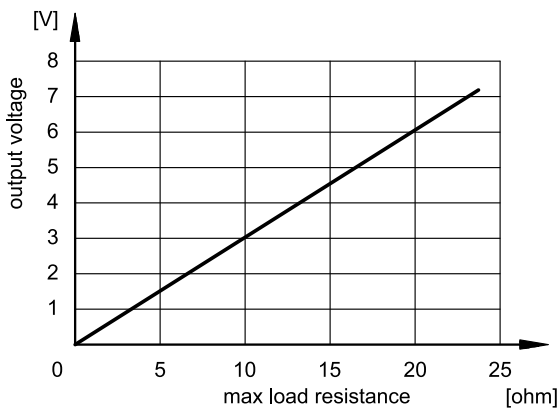
TECHNICAL CHARACTERISTICS

Power supply	V DC	18 ÷ 30 ripple included
Current consumption	mA	400
Command position value	V	± 10 ($R_I = 100$ kohm)
Frequency	Hz	140
Current output	mA	10 to 300 ($R_I = 25$ ohm at I_{max})
Dither frequency	Hz	250 or 100
Dither amplitude	%	0...15 of nominal current
Offset	%	± 6.5
Auxiliary supply voltage	V mA	± 10 max 10
Electromagnetic compatibility (EMC) according to 2014/30/EU standards		emissions EN 61000-6-4 immunity EN 61000-6-2
Housing material		thermoplastic polyamide PA6.6 - combustibility class V0 (UL94)
Housing dimensions	mm	120(d) x 99(h) x 23(w)
Connector		4x4 poles screw terminals - PE direct via DIN rail
Operating temperature range	°C	0 ÷ 50
Protection degree		IP20

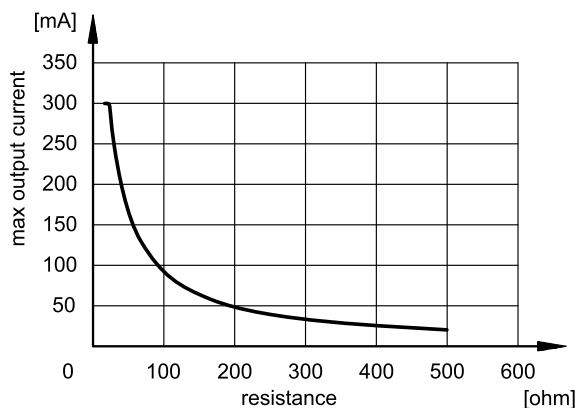
1 - IDENTIFICATION CODE



The power amplifier is controlled by an analogue input ± 10 Volt.
The output current is closed loop controlled and therefore independent from the supply voltage and the solenoid resistance.
The diagram below shows the voltage drop depending on the load resistance ($I = 300$ mA)



The diagram below shows the EWM working range.



2 - FUNCTIONAL SPECIFICATIONS

2.1 - Power supply

This card is designed for 18 to 30 V DC (typical 24 V) of a power supply. This power supply must correspond to the actual EMC standards.

All inductivity at the same power supply (relays, valves) must be provided with an over voltage protection (varistors, freewheeling diodes).

A regulated power supply (linear or switching mode) is recommended.

2.2 - Electrical protections

All inputs and outputs are protected against overvoltage and have filters.

2.3 - Reference signal

The card accepts an analogue input signal ± 10 V ($R_I = 100$ kohm).

2.4 - Configurable output values

If the desired current value was specified when ordering, the board will arrive already configured. If a non-configured board (E ending code) has been ordered, it will be necessary to set the value for the output current (100% of the reference signal) by configuring the DIL switches S1 to S5 on the internal board.

A value between 10 and 300 mA can be set, as shown in the following table:

	Current	S1	S2	S3	S4	S5
E	0 mA	OFF	OFF	OFF	OFF	OFF
E10	10 mA	ON	OFF	OFF	OFF	OFF
E20	20 mA	OFF	ON	OFF	OFF	OFF
E30	30 mA	ON	ON	OFF	OFF	OFF
E40	40 mA	OFF	OFF	ON	OFF	OFF
E50	50 mA	ON	OFF	ON	OFF	OFF
E60	60 mA	OFF	ON	ON	OFF	OFF
E70	70 mA	ON	ON	ON	OFF	OFF
E80	80 mA	OFF	OFF	OFF	ON	OFF
E90	90 mA	ON	OFF	OFF	ON	OFF
E100	100 mA	OFF	ON	OFF	ON	OFF
E110	110 mA	ON	ON	OFF	ON	OFF
E120	120 mA	OFF	OFF	ON	ON	OFF
E130	130 mA	ON	OFF	ON	ON	OFF
E140	140 mA	OFF	ON	ON	ON	OFF
E150	150 mA	ON	ON	ON	ON	OFF
E160	160 mA	OFF	OFF	OFF	OFF	ON
E170	170 mA	ON	OFF	OFF	OFF	ON
E180	180 mA	OFF	ON	OFF	OFF	ON
E190	190 mA	ON	ON	OFF	OFF	ON
E200	200 mA	OFF	OFF	ON	OFF	ON
E210	210 mA	ON	OFF	ON	OFF	ON

	Current	S1	S2	S3	S4	S5
E220	220 mA	OFF	ON	ON	OFF	ON
E230	230 mA	ON	ON	ON	OFF	ON
E240	240 mA	OFF	OFF	OFF	ON	ON
E250	250 mA	ON	OFF	OFF	ON	ON
E260	260 mA	OFF	ON	OFF	ON	ON
E270	270 mA	ON	ON	OFF	ON	ON
E280	280 mA	OFF	OFF	ON	ON	ON
E290	290 mA	ON	OFF	ON	ON	ON
E300	300 mA	OFF	ON	ON	ON	ON

3 - LED MEANINGS

There is only one green led, for POWER ON message.

GREEN: Shows if the card is ready.

- ON - The card is supplied
- OFF - No power supply

4 - OTHER SETTINGS

The zero position and dither amplitude may be adjusted if needed.

4.1 - Offset

A potentiometer (P1) placed on the board inside the case allows the adjustment of the zero point of the amplifier in case of avoiding unmean controlling or compensating dead bands.

- Default preset: 0%
- Adjustment range: $\pm 6.5\%$

4.2 - Dither

The S6 DIL switch inside the case set the dither frequency as below:

S6	frequency
ON	250 Hz
OFF	100 Hz

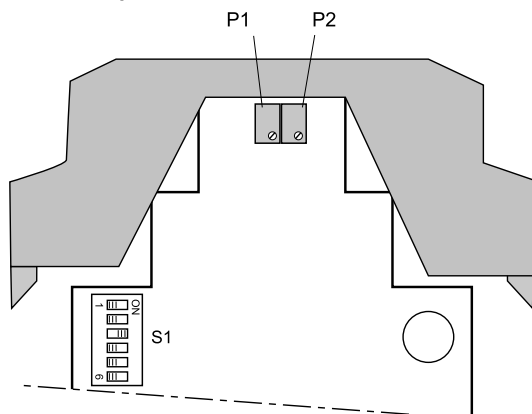
Default preset: OFF

Moreover, the amplitude of the dither signal may need to be optimised for best valve performance. P2 potentiometer allows the amplitude of the dither signal to be adjusted.

The set value is a percentage of the nominal output current. The dither signal is deactivated if the potentiometer is in leftmost position.

- Default preset: 5%
- Adjustment range: 0...15%

Potentiometers position



5 - INSTALLATION

The card is designed for rail mounting type DIN EN 50022.

The wiring connections are on the terminal strips located on top and on the bottom of the electronic card.

Cables with section of 0.75 mm² up to 20 m length, and with section of 1.00 mm² up to 40 m length are recommended for power supply and solenoid connection.

For other connections use wires with a shielded jacket, connected to GND only on the card side.

NOTE: To observe EMC requirements it is important that the control unit electrical connection is in strict compliance with the wiring diagram.

As a general rule, the valve and the electronic unit connection wires must be kept as far as possible from interference sources (e.g. power wires, electric motors, inverters and electrical switches).

Complete protection of the connection wires can be requested in environments with critical electromagnetic interferences.

Ensure the EWM-A-SV is wired correctly and that the signals are well shielded. The card must be installed in a metal protective housing (control cabinet or similar).

5.1 - First switch-on

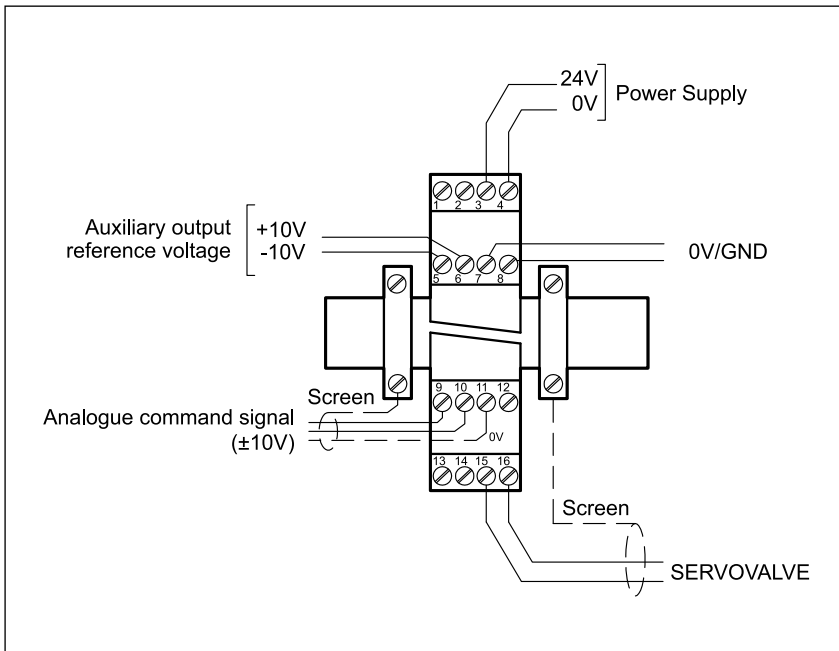
Ensure that no unwanted movement is possible in the drive (e. g. switch off the hydraulics). Connect an ammeter and check the current consumed by the drive. If it is higher than specified, there is an error in the cabling. Switch the device off immediately and check the cabling.

If not already configured, set up the output current, dither and offset parameters of the EWM card. Pre-parameterization is necessary to minimize the risk of uncontrolled movements.

Check the control signal is correct by an ampere meter, then switch-on the hydraulics.

At last, tune the remaining parameters according to your application and your requirements.

6 - WIRING DIAGRAM



ANALOGUE INPUT

PIN 9/10 Command (input) signal (W), range +/-100 % corresponds with +/-10 V.

ANALOGUE OUTPUT

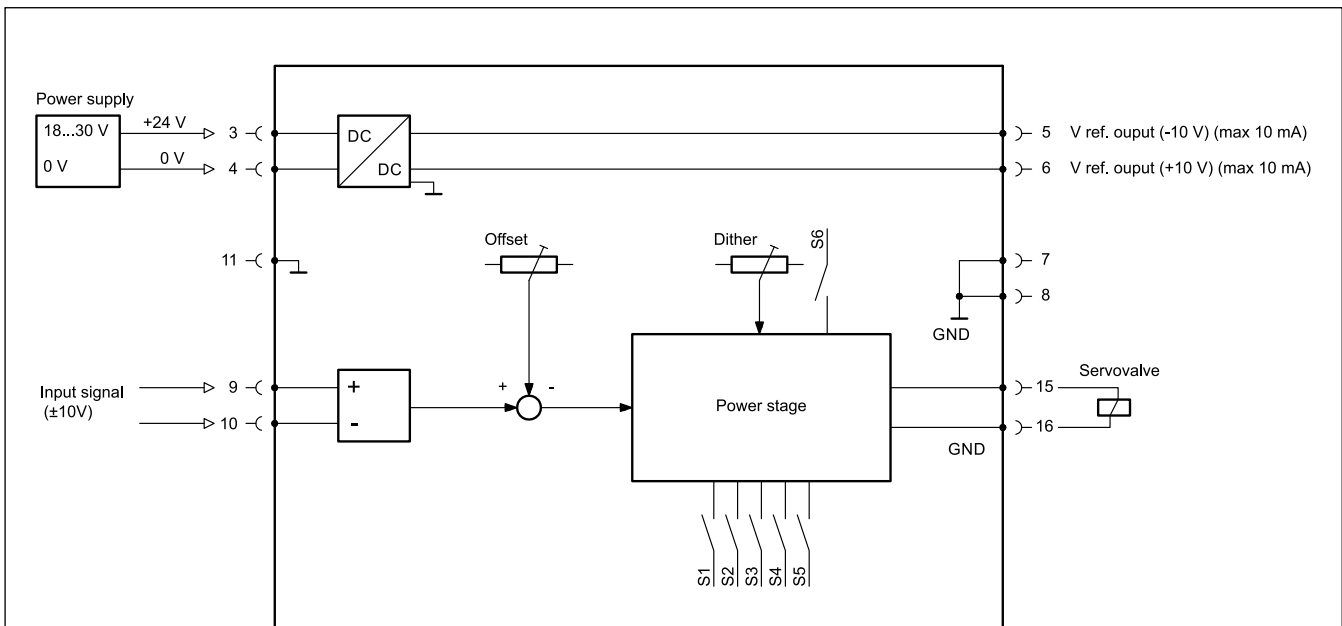
PIN 5 Reference output voltage -10 V (max 10 mA)
Auxiliary supply to power external potentiometer.

PIN 6 Reference output voltage +10 V (max 10 mA)
Auxiliary supply to power external potentiometer.

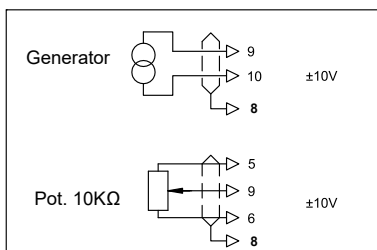
POWER OUTPUT

PIN 15/16 PWM output for servovalve control. (10...300 mA, step 10 mA)

7 - CARD BLOCK DIAGRAM

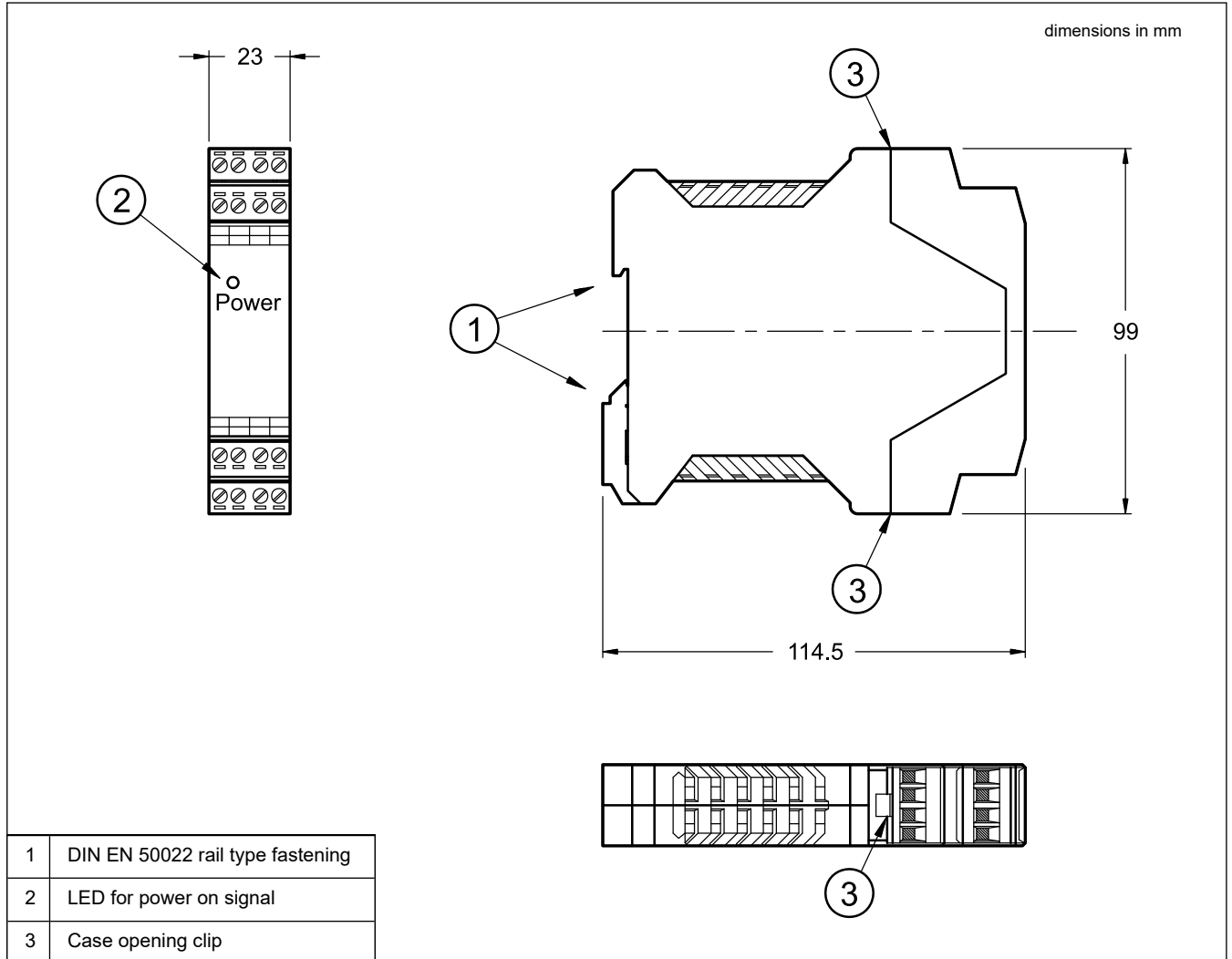


CONTROL SIGNAL WIRING VARIANTS



NOTE: If the reference signal source is a potentiometer then PIN 10 must be connected with PIN 11.

8 - OVERALL AND MOUNTING DIMENSIONS





EWM-A-SV

SERIES 11

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